

# NASA TECH BRIEF



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## Optimizing Insulation Weight on Cryogenic Storage Tanks

A mathematical model has been developed for approximating the optimum weight of insulation to be used on cryogenic storage tanks.

The model uses key parameters, including boil-off rate, insulation density, tank surface area, performance level, and mission requirements to permit the designer to arrive at approximate insulation requirements during the early phase. Other parameters, such as tank weight, storage pressure and the weight of the pressurization system are not included in this first-approximation model.

The techniques of this mathematical model may also be applied to ground cryogenic storage tanks. In this application, where weight considerations may not be particularly important, the mathematical model

could be used to provide optimum cost information relative to design economy.

### Note:

Requests for further information may be directed to:  
Technology Utilization Officer  
Kennedy Space Center  
Kennedy Space Center, Florida 32899  
Reference: TSP70-10102

### Patent status:

No patent action is contemplated by NASA.

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